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## How do I equalize contrast & brightness of images using opencv?

I've got an image that I've scanned, but the white paper is not white on the screen. Is there a way to equalize the contract/brightness to make the background whiter?

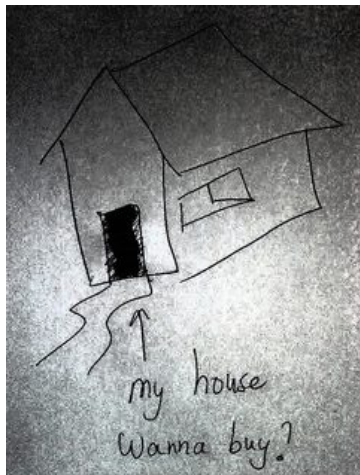


### Update

I've tried the suggested `Image._EqualizeHist` function from EmguCv:

```
string file = @"IMG_20120512_055533.jpg";  
Image<Bgr, byte> originalColour = new Image<Bgr, byte>(file);  
  
Image<Bgr, byte> improved = originalColour.Clone();  
improved._EqualizeHist();
```

But get an even worse result (also when first gray scaled):



Am I missing other parameters?

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edited May 12 '12 at 5:31

Cody Gray  
95.3k 11 159 244

asked May 12 '12 at 5:02

taoufik  
2,470 11 30

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I don't know why, but equalizehist gives more worse result in such cases.. me too have this problem sometimes.. – Abid Rahman K May 12 '12 at 5:42

[add comment](#)

## 4 Answers

I have discussed some techniques here : [How can I adjust contrast in OpenCV in C?](#)

Please check it. Below are the results i got when i tried last two methods on your image

### 1) Thresholding:

Thresholding gives a binary image. If that is what you want you can apply `threshold` function

### 2) If grayscale image needed :



### Additional :

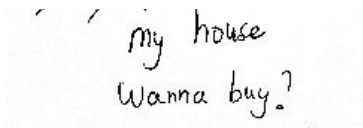
Morphological closing also work good in your case

```
img = cv2.imread('home.jpg',0)
kernel1 = cv2.getStructuringElement(cv2.MORPH_ELLIPSE,(5,5))
close = cv2.morphologyEx(gray,cv2.MORPH_CLOSE,kernel1)
div = np.float32(gray)/(close)
res = np.uint8(cv2.normalize(div,div,0,255,cv2.NORM_MINMAX))
```

(code in Python API)

Result Below:





edited May 12 '12 at 5:53

answered May 12 '12 at 5:39



Abid Rahman K  
16k 6 45 77

+1 I really like your answers, keep up the good job. – kariphillip May 15 '12 at 0:53

thank you !!!!! – Abid Rahman K May 15 '12 at 6:39

add comment

I suggest using [AdaptiveThreshold](#). It works by doing local neighbourhood thresholding for every pixel in the image (this really is a big deal when there are gradient backgrounds, a bit stronger than in your image). The `blockSize` parameter is the size of the neighbourhood, and the processed pixels value must be greater than the average neighbourhood value minus `param1`.



Here is how to do it in python (it should be very easy to convert to c):

```
import cv
im = cv.LoadImage("9jU1Um.jpg", cv.CV_LOAD_IMAGE_GRAYSCALE)
cv.AdaptiveThreshold(im, im, 255, cv.CV_ADAPTIVE_THRESH_MEAN_C,
                    cv.CV_THRESH_BINARY, blockSize=31, param1=15)
cv.ShowImage('image', im)
cv.WaitKey(0)
```

edited May 12 '12 at 10:16

answered May 12 '12 at 10:11



fraxel  
12.4k 1 26 45

add comment

It is called `equalizeHist`. I do not know its name in emgu, but the result should be exactly what you need - brighter background, and darker text.

#### EDIT

To extract only the edges (which is very different from the image enhancement techniques) you can simply apply Canny. Select the two thresholds as 20 and 60, for start, and then increase (or decrease them) keeping a ration of 3:1 between them, until you have a good-looking edge image.

edited May 13 '12 at 6:20

answered May 12 '12 at 5:11



sammy  
9,441 13 36

add comment

Either way, you can also check every each pixel. Set it to 0 if less then a defined value and set to 255 if exceed the define value.

answered May 13 '12 at 2:50



M7k



484 5 19

[add comment](#)

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